Bill 25
Additional Testimony

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BOMA HAWAII
Building Owners and Managers Association

"Advancing the Commercial Property Management Industry through Education, Networking and Advocacy"

Testimony to the
Honolulu City Council

July 3, 2019
10:00 a.m.
Honolulu Hale, City Council Chamber

RE: Bill 25 Relating to City Energy Conservation Code

Aloha Chair Anderson, Vice Chair Kobayashi, and members of the council:

We are testifying on behalf of the Building Owners and Managers Association of Hawaii, a trade organization focused on actively and responsibly representing the commercial real estate industry through the collection, analysis and communication of information and through professional development. BOMA Hawaii is a leader in promoting energy efficient buildings and strongly supports energy efficient alternatives transportation.

It has been estimated that more than 500,000 electric vehicles are now on the road in the United States, and this is only expected to grow. As plug-in cars have become more visible on the nation's highways and local streets, there has also been a corresponding need for electric vehicle charging stations. This emerging need is creating a marketplace demand. Many building owners have installed EV charging stations and have successfully used them as a profit center as well as an amenity to attract new business and/or new tenants. Others are reluctant to take on the cost (installation cost, lost revenue from lost parking spaces, etc.), ongoing maintenance and management responsibilities, and liability. Where building owners can balance the benefits and potential draw backs, and where it makes economic sense, we believe that property owners will move forward to meet the need, without federal, state or local mandates.

We want to contribute positively to the discussion about promoting and incentivizing the construction of parking stations ready to be equipped with electric vehicle charging stations. We look forward to serving as a resource to the Council's subject matter committees on this bill and appreciate the opportunity to testify.

Melissa Pavlicek
808-447-1840
mpavlicek@hawaiipublicpolicy.com
Bill 25
Comment
BOMA Hawaii

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blue planet FOUNDATION

CITY COUNCIL
City and County of Honolulu
July 3, 2019, 10:00 A.M.
City Council Chamber
(Testimony is 9 pages long)

TESTIMONY IN SUPPORT OF BILL 25 (2019), WITH SUGGESTED AMENDMENTS
Relating to the adoption of the State Energy Conservation Code

Chair Anderson, Vice Chair Kobayashi, and Members of the City Council:

Blue Planet Foundation strongly supports Bill 25 (2019), a measure to modernize the City & County of Honolulu's (Honolulu's) building energy code. The proposed bill adopts a revised version of the Hawai'i Energy Code for Honolulu. These revisions would update Honolulu's existing building energy code—which is over thirteen years out of date—to increase occupant health and comfort while reducing energy use. The proposed code revision reflects broad changes in technology, building materials, and best practices, while considering Honolulu's unique island and building environment. ***We respectfully offer a proposed amendment on page 5 of our testimony to better "future-proof" new homes to handle the rapid increase in zero emission vehicles.***

Blue Planet Foundation is a Hawai'i-based nonprofit organization. We work to clear the path for local, clean, renewable power. Through our advocacy for clean energy adoption, we seek to make our communities stronger, our energy more secure, our environment healthier, and our economy more robust. We appreciate Honolulu's growing leadership on clean energy issues.

As detailed below, the building energy code update proposed in Bill 25 is:

- enormously cost-effective for residents and business owners on O'ahu;
- consistent with the state's very strong policy directives in favor of energy conservation; and
- flexible to make compliance easier for builders.

The Code Updates Support the State's Energy Mandates in a Cost-Effective Manner

Energy efficiency is the most cost-effective energy resource available in the state, costing a fraction of fossil fuel-powered electricity.[1] The anticipated energy savings arising from the 2015

[1] Energy savings delivered by the state's Hawai'i Energy program in 2016 cost 2.06 cents per kWh. *See Hawaii*

IECC (International Energy Conservation Code) were tabulated in a May 2016 Report prepared for the Department of Business, Economic Development & Tourism ("DBEDT").[2] When translated into dollars, the billions in savings plainly illustrate the enormous benefit of the proposed amendments.

Statewide Savings	2016	2026	2030	2036
MWh	12,962	1,083,590	1,991,059	4,702,738
$	**$4,000,000**	**$337,000,000**	**$619,000,000**	**$1,463,000,000**

(Note: energy cost savings calculated here utilize the average retail cost of electricity over the past five years;[3] this provides a conservative estimate of cost savings, because it does not factor a potential rise in energy prices.)

Extrapolating the savings for O'ahu based on the percentage of energy used on the island versus statewide energy use, **the estimated 20-year savings for O'ahu is over $971 million under the proposed building energy code revisions (approximately $318 million in residential energy savings and $653 million in commercial energy savings).**

The substantial savings resulting from reduced energy use dwarf the associated costs. In its February 2016 report, the Pacific Northwest National Laboratory stated: "The 2015 IECC provides cost-effective savings for residential buildings in Hawai'i. Moving to the 2015 IECC from the 2006 IECC base code is cost-effective for residential buildings in all climate zones in Hawai'i."[4] Moreover, we understand that this cost-effectiveness may be *even higher* for many residential buildings in Hawai'i, where immediate cost savings can be obtained via lower construction costs *and* lower energy costs by utilizing the particularly important portions of the code applicable to the tropical zone. In such instances, the "payback" period would be immediate.

Energy Conservation is a Bedrock Policy of the State

The energy landscape has shifted dramatically in the last decade. In 2015, Hawai'i adopted the nation's first 100% renewable energy mandate. Meanwhile, as Hawai'i and other places around the globe have made smarter energy a priority, technologies for energy efficiency and other demand-side management strategies have progressed rapidly alongside.

Energy 2014 Annual Report, available at https://hawaiienergy.com/images/resources/ProgramYear2016_AnnualReport.pdf. Even with today's relatively low oil prices, electricity from oil-fired power plants costs around seven times more. *See DBEDT Monthly Energy Trends, available at* http://dbedt.hawaii.gov/economic/energy-trends-2/.

[2] *See* The Cadmus Group, Inc., *Energy Savings Forecast for the 2015 Int'l Energy Cons. Code with Haw. Amendments* (prep'd for DBEDT, May 2016), *available at* https://energy.hawaii.gov/wp-content/uploads/2016/07/Energy-Savings-Forecast.pdf.

[3] *See* DBEDT Monthly Energy Trends.

[4] Pac. Northwest Nat'l Lab., *Cost-Effectiveness Analysis of the Residential Provisions of the 2015 IECC for Hawaii* (prep'd for the U.S. Dept. of Energy by, Feb. 2016), *available at* https://www.energycodes.gov/sites/default/files/documents/HawaiiResidentialCostEffectiveness_2015.pdf

These policy and technical advancements have left a gap between the existing code (based on the IECC of 2006) and today's energy realities. The proposed 2015 update in Bill 25 will take important steps to narrow the gap.

In a state with no indigenous fossil fuels, it makes sense that energy conservation is a core principle. Indeed, the importance of energy stewardship and efficiency is directly embedded within Hawai'i's constitution:

> For the benefit of present and future generations, the State and its political subdivisions shall conserve and protect Hawaii's natural beauty and all natural resources, **including . . . energy sources**, and **shall promote the development and utilization of these resources in a manner consistent with their conservation** and in furtherance of the self-sufficiency of the State.[5]

Similarly, state lawmakers have stated that planning for the state's infrastructure shall be directed toward the achievement of objectives that include: "Sequester more atmospheric carbon and greenhouse gases than emitted within the State as quickly as practicable, but no later than 2045";[6] and "Increased energy security and self-sufficiency through the reduction and ultimate elimination of Hawai'i's dependence on imported fuels for electrical generation and ground transportation."[7]

To achieve these objectives, it is the official policy of the state to promote energy conservation through measures such as: "**Adoption of energy-efficient practices and technologies**" and "**Increasing energy efficiency and decreasing energy use in public infrastructure.**"[8]

These constitutional and legislative policy directives in favor of energy conservation strongly support Bill 25 to modernize the Honolulu building energy code.

The Code Updates Provide Compliance Flexibility to Builders

Many of the building energy code amendments in the proposed energy code update address Hawai'i's tropical environment. Further, they provide flexibility and options to builders to comply with the code, reducing construction costs and making compliance easier. Specifically:

- Walls of residential and commercial buildings are exempt from expensive exterior insulation requirements when they are shaded or have light-colored exterior coatings.

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[5] Haw. Const. art. XI, § 1 (emphasis added).
[6] Hawai'i Revised Statutes (HRS) § 225P-3(a).
[7] HRS § 226-18(a).
[8] HRS § 226-18(c)(4) (emphasis added).

- Mass walls six inches and thicker in commercial buildings will not be required to have insulation. The national code requires R-5.7 continuous insulation, which would add substantially to the cost of construction.

- Lighting systems in commercial buildings may be designed to 70% of 2015 IECC lighting power density in lieu of installing complex daylighting and dimming systems which add to design, material and labor costs. The 70% option reaps greater energy savings than would the two control systems.

- Roof replacements in commercial buildings may be done with solar reflectance, attic ventilation or radiant barriers, substantially reducing construction costs compared to national code requirements.

- Homes will not be required to insulate floors to R-13, substantially reducing construction costs.

- Re-roofed homes will be allowed to comply with the options of ENERGY STAR roof coverings, radiant barriers, or attic ventilation in lieu of more expensive insulation requirements.

- The Tropical Code option section is designed for homes with no air conditioning or minimal air conditioning. The design eliminates the requirement for tight home construction and minimizes wall and roof insulation requirements. The point system rewards design promoting cross ventilation and large overhangs over walls and windows and other passive design features, lowering construction costs. An optimized Tropical Code home, compared to an air-conditioned home, reduces energy by as much as 48%.

The Code Makes Sensible Additions to Honolulu's Building Energy Code

In addition to the myriad energy saving additions incorporated in the updated IECC 2015 building energy code (as proposed for Honolulu), Blue Planet Foundation appreciates the inclusion of the following energy upgrades in this proposed ordinance:

- Sub-metering is required in commercial tenant spaces, providing more visibility into energy use for tenants and enabling them to take better control of their energy finances.

- Lanai doors in hotel and similar buildings shall include a switch that turns off the air conditioning if the door is not closed. This reduces energy costs and prevents warm moist air from coming into contact with cold surfaces, potentially causing condensation, mold, and health issues.

Bill 25 Wisely Provides High-Efficiency and Renewable Water Heater Options

Solar water heating is recognized as an incredibly efficient—and cost-saving—strategy for most homes. Since 2010, the state has required solar water heating in almost all new homes. But this law has a variance process for rare exceptions where solar just doesn't work. Unfortunately, this variance has been abused by developers, despite the legislature's clear intent that variances "will be rarely, if ever, exercised or granted." Consequently, nearly half of new homes proposed or being built today on O'ahu include fossil-fuel gas water heaters. Thousands of homes on the hot Ewa Plain of O'ahu are slated to be built with gas water heaters, locking future homeowners into higher energy costs over years of home ownership. Instead of being part of our clean energy future, these homes will contribute to climate change for decades into the future.

Bill 25 corrects the solar water loophole, ensuring that new homes built today come equipped with water heaters powered by the sun (or another renewable source), or—if a renewable source isn't cost effective—a water heater that works as a heat pump, a "smart" grid-interactive water heater, or a water heater that uses at least 90% renewable gas. Again, if a solar- or renewable-powered water heater does not make sense economically—based upon a lifecycle cost-benefit analysis that incorporates the average residential utility bill and the cost of the new solar water heater system with a lifecycle that does not exceed fifteen years—then one of the following technologies advancing clean energy may be used instead:

> *Heat pump water heater.* A heat pump uses electricity to move heat from one place to another (like a refrigerator operating in reverse) rather than generating its own heat like a traditional electric water heater. This makes heat pumps two to three times more efficient, according to the Department of Energy (DOE). Heat pumps can also work to help cool homes. According to the DOE, a heat pump water heater can save an O'ahu household of four people nearly $1,000 per year on their electric bill.
>
> *Grid-interactive water heater (GIWH).* A GIWH is a smart water heater that uses intelligent controls that are capable of interacting with and participating in utility load control or demand response programs. This allows the water heater to be an asset on the utility grid by smoothing out electricity usage and increasing the use of variable renewable energy. A local company, Shifted Energy, has already deployed hundreds of GIWH systems across O'ahu.
>
> *Renewable gas water heater.* A renewable gas water heater would heat water using no less than 90% renewable gas fuel. This could be natural gas or methane produced from renewable sources (such as biomass or methane from wastewater treatment plants or landfills), or hydrogen gas developed from renewable sources.

This addition to the proposed building energy code update provides flexibility to developers while ensuring that future homes will be built with high-efficiency or renewable water heaters.

Bill 25 Helps to Make Electric Vehicles More Accessible to Residents

Blue Planet Foundation strongly supports the inclusion of a limited "EV-Ready" requirement for new commercial and multi-family residential construction in Bill 25. This is an important first step to lowering the overall cost of our transition to electrified transportation and make electric vehicles more accessible to O'ahu residents. *We do, however, encourage the Council to strengthen this provision in Bill 25 (please see our proposed amendment at the end of this testimony).*

Electric vehicles (EV) are the fastest growing segment of new cars in Hawai'i. Over the past year (May 2018 – May 2019), EV registrations on O'ahu increased by over 30%, while registrations of gasoline-powered vehicles grew only 0.1 percent.[9] We expect over 10,000 EVs registered statewide by the end of this year—a number that is expected to grow exponentially as new EV models with longer ranges and lower prices hit the market.

Electric vehicles will play an integral role in Hawai'i's clean energy future. While EVs that use the existing electricity grid to charge still use mostly fossil fuel, they use that fuel more effectively than burning fuel directly in a typical gasoline engine. This is why EVs are much less expensive to "fuel" per mile than their gasoline counterparts. Further, by using stored electrical energy, EVs can take advantage of intermittent solar, wind, and other clean energy resources. Most vehicles sit idle over 22 hours of the day, so they can become *de facto* energy storage devices if their batteries are plugged into the grid when they are not in use. With smart grid infrastructure in place, EVs become an essential component to electricity load and clean energy resource balancing—in addition to providing clean mobility solutions for Hawai'i residents.

Still, over 600,000 gasoline-powered vehicles are on O'ahu's roads—and from them comes nearly five million metric tons of climate-changing carbon pollution. What's worse, while O'ahu has made decent progress in reducing its carbon emissions from the electricity sector, emissions from ground transportation have been increasing in recent years.

The International Energy Agency has found that "the availability of chargers emerged as one of the key factors for contributing to the market penetration of EVs."[10] Unlike gasoline car owners, charging behavior for EV owners indicates that more than 80% of EV drivers charge their cars at home or at work.[11] In addition, a large share of the Honolulu's population lives in high density, multi-family residential buildings. The vast majority of parking facilities currently lack EV chargers.

By ensuring that we are "future-proofing" new construction projects, this measure is an important step toward increasing electric vehicle charging options for those who don't have access to charging at home or at work.

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[9] DBEDT Monthly Energy Trends, June 2019 (http://dbedt.hawaii.gov/economic/energy-trends-2/).
[10] *Global EV Outlook 2017,* https://www.iea.org/publications/freepublications/publication/GlobalEVOutlook2017.pdf.
[11] *Id.*

Honolulu can expect more residents to choose EVs over gasoline vehicles as prices decrease. Battery costs have fallen precipitously over the past several years so that in many cases, the total cost of ownership for EVs is lower than for gasoline vehicles. Experts expect battery prices to continue to fall and as automakers increase the number of models and volume of EVs in the next few years, the upfront cost of EVs is expected to reach upfront cost parity with gasoline vehicles by 2024.[12]

In part due to falling costs and increasing consumer demand, and in part due to government policies supporting EVs, nearly all of the world's leading automakers have announced aggressive strategies and investments in EVs during the past two years.

The most challenging aspect of EV charger installation is the common lack of electrical capacity and distributed subpanels to support broad deployment of charging infrastructure. **By choosing not to install the wiring and conduit upfront in new construction, developers are forcing tenants to pay for expensive retrofit costs to upgrade power capacity near their parking stalls.**

Studies have shown that **installing EV infrastructure at the time of construction can be 91% less expensive than post-construction retrofits**, and per stall installation costs can be reduced through economies of scale.[13] While this bill would not require the installation of the actual EV charging infrastructure, it would require that the power capacity and conduit be set up during construction, which would dramatically reduce retrofit costs at the time of charger installation, creating cost savings downstream for residents and tenants.

Cities around North America are adopting EV-Ready requirements for commercial and residential new construction. Seattle, San Jose, Atlanta, San Francisco, and Oakland have adopted requirements for a certain percentage of stalls to be ready for Level 2 charging. Vancouver, British Columbia, now requires that 100% of new parking stalls be built ready for EV chargers. Honolulu—with the second highest adoption of EVs per capita nationwide—should implement a similar policy.

Electric vehicles are better for the environment and the economy and can help O'ahu reach its renewable energy and transportation goals. The time has come when Honolulu residents want to purchase electric vehicles but need convenient and affordable charging options. An EV-Ready requirement will ensure that the EV charging infrastructure network necessary to support the influx of electric vehicles can be installed more efficiently and cost-effectively in new construction projects. It will provide new EV owners—particularly those that will live in new multi-family residential buildings—with the confidence that they will be able to access charging at home, at the workplace, and in public spaces.

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[12] *See* Bloomberg New Energy Finance, https://bnef.turtl.co/story/evo2018.

[13] *See* http://evchargingpros.com/wp-content/uploads/2017/04/City-of-SF-PEV-Infrastructure-Cost-Effectiveness-Report-2016.pdf.

SUGGESTED AMENDMENT

Blue Planet Foundation respectfully requests that Councilmembers consider an amendment to strengthen Bill 25 to better "future-proof" new homes to handle the rapid increase in zero emission vehicles. We ask that the provision in Bill 25 for EV-Ready infrastructure be amended to require Level 2 EV-Ready infrastructure instead of Level 1 for multi-family residential construction with over eight parking stalls.

The current draft of Bill 25 requires that residential multi-family dwellings (with more than eight parking stalls) include at least 25% EV-ready stalls—but only equipped to handle Level 1 (or slow) charging infrastructure. This is woefully inadequate for meaningful vehicle charging and significantly reduces the opportunity to use vehicle charging for utility demand response or load control programs. Further, the current provision in Bill 25 is a departure from the EV-Ready requirements that are increasingly being adopted around the country, which are standardized around Level 2 charging.

Level 1 charging, or "trickle charging," means charging an EV using a standard 120-volt outlet. The rate of charge associated with this is roughly four miles of driving range per hour of charging. Below is a list of the most commonly purchased EVs and the associated charging time for a full charge from a Level 1 charger:

- Nissan Leaf – 1.7 to 2.6 days
- Chevy Bolt – 2.5 days
- Tesla Model 3 – 2.5 to 3.1 days

These charging times are impractical for most drivers and would likely lead to unnecessary cost for residents to later upgrade the electrical equipment to handle faster charging. To the degree the intent of the proposed EV-Ready amendment is to ensure that buildings are constructed in a manner that can effectively support the decision of Honolulu residents to purchase an EV, this particular provision needs to be changed to require Level 2 charging.

To accomplish this, Blue Planet Foundation requests that the proposed language in Bill 25 relating to Subsection C406.8 should be modified as follows (underlined indicates additions, ~~strikethrough~~ indicates deletions):

> C406.8 Electric vehicle infrastructure. New residential multi-unit buildings that have eight or more parking stalls, and new commercial buildings that have twelve or more parking stalls, shall be electric vehicle charger ready for at least 25 percent of the parking stalls. As used in this section, "electric vehicle charger ready" means that sufficient wire, conduit, electrical panel service capacity, overcurrent protection devices and suitable termination points are provided to connect to a charging station capable of providing simultaneously an AC Level ~~1~~ 2 charge per required parking stall ~~for residential and multi-unit buildings. For commercial buildings, at least 25 percent of the parking stalls~~

~~are required to be AC Level 2 charger ready~~. Charge method electrical ratings are provided below:

CHARGE METHODS ELECTRICAL RATING

Charge Method	Normal Supply Voltage (Volts)	Maximum Current (Amps – Continuous)	Supply Power
~~AC Level 1~~	~~120V AC, 1-Phase 120V AC, 1-Phase~~	~~12A 16A~~	~~120VAC/20A (12-16A continuous)~~
AC Level 2	208 to 240V AC, 1-Phase	≤ 80A	208/240VAC/20-100A (16-80A continuous)

Conclusion

The proposed Honolulu building energy code amendments in Bill 25 are sensible, cost-effective, and flexible. They are a meaningful response to our climate crisis and the need to decrease the cost of living for O'ahu residents. Blue Planet Foundation strongly supports Bill 25's adoption with our proposed amendment to increase the EV-Ready provision to handle Level 2 charging. We are happy to answer any questions about this proposed bill or our testimony.

Mahalo for this opportunity to provide testimony.

Jeff Mikulina
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jeff@blueplanetfoundation.org
Bill 25 (2019)
Support
Blue Planet Foundation

FERRARO CHOI

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July 2, 2019

Honorable Members of The Honolulu City Council

HTTP://www.honolulu.gov/ccl-testimony-form.html;

Re: Bill 25 – Proposed Energy Code Update:

Dear Council Members:

I am a practicing architect in Honolulu any encourage the Council to adopt the proposed updates to the City's energy ordinance. Adopting the updates with align the energy code tot eh State of Hawaii's highly sustainable energy code and allow for construction documentation to conform to both state and county requirements. I also encourage this update since it will provide for greater use of our natural energy resources and reduce our carbon footprint.

Thank you for your consideration and approval.

Sincerely,

Joe Ferraro, FAIA, LEED AP
Principal
Ferraro Choi And Associates, Ltd.

ELEMENTAL
EXCELERATOR

Written Statement of Elemental Excelerator
before the Honolulu City Council Committee on Zoning and Housing
Wednesday, July 3, 2019

In Consideration of Bill 25
Relating to the Adoption of the State Energy Conservation Code

Aloha Chair Anderson and Members of the Honolulu City Council:

Elemental Excelerator respectfully **submits support** for Bill 25, which regulates the design and construction of residential and commercial buildings for the effective use of energy through the adoption of the State Energy Conservation Code (2017), subject to local amendments by the City and County of Honolulu.

Elemental Excelerator is a Honolulu-based growth accelerator program founded and operating in Hawai'i. We have awarded over $30 million to 82 companies resulting in 56 demonstration projects in Hawai'i & Asia Pacific. Each year, we evaluate over 500 companies and look for innovative entrepreneurs from around the world to come to Hawai'i and find transformative solutions to help us achieve our 100% clean energy goals and solve our most pressing environmental problems. We select 15-20 companies annually that best fit our mission and fund each company up to $1 million.

In April 2018, Elemental Excelerator commissioned a study entitled *Transcending Oil: Hawai'i's Path to a Clean Energy Economy*. The study found that in Hawai'i, transitioning to renewable energy is cheaper than sticking with oil. The faster we go, the cheaper it will be. As a policy recommendation, the study identified following through and enforcing current clean energy policies by fully funding and implementing building codes and standards. The report also found that "*Energy efficiency efforts increased over the past decade, led by Hawaii Energy's electric savings programs and a **push to update building codes**.*" [1]

We support Bill 25 for the following reasons:

1. **It is economically responsible**: According to a report by the National Institute of Building Sciences, for every $1 invested in updating building codes, it yields an $11 benefit. Updating building codes increase resiliency and mitigate potential costs that could come from natural disasters caused by climate change.[2]
2. **It opens up opportunities for innovation:** Updating our energy codes can address the rapid changes in technology that innovation has developed. In particular, the

[1] Larsen, J., Mohan, S., Herndon, W., Marsters, P., & Pitt, H. (2018, May 01). Transcending Oil: Hawaii's Path to a Clean Energy Economy, p.13 and 37, Retrieved from https://rhg.com/research/transcending-oil-hawaiis-path-to-a-clean-energy-economy/
[2] https://www.nibs.org/news/432994/National-Institute-of-Building-Sciences-Issues-Interim-Report-on-the-Value-of-Mitigation-.htm

sections that provide guidance on grid interactive water heaters and electric vehicle charging infrastructure support the deployment of commercial ready clean energy innovation. About 17% of Elemental Excelerator's 82 portfolio companies, such as Hawai'i grown company Pono Home and Shifted Energy, focus on building efficiency, demonstrating an increased opportunity to attract innovation with forward-thinking policies such as Bill 25.

Mahalo for the opportunity to provide testimony.

Sincerely,

Aki Marceau
Managing Director, Policy and Community- Hawai'i

From: CLK Council Info
Sent: Tuesday, July 02, 2019 9:28 PM
Subject: Council/Public Hearing Speaker Registration/Testimony

Speaker Registration/Testimony

Name	Will Giese
Phone	8082328371
Email	wgiese@hsea.org
Meeting Date	07-03-2019
Council/PH Committee	Council
Agenda Item	Bill 25
Your position on the matter	Support
Representing	Organization
Organization	Hawaii Solar Energy Association
Do you wish to speak at the hearing?	No

Written Testimony

TESTIMONY OF THE HAWAII SOLAR ENERGY ASSOCIATION
IN REGARD TO BILL 25, RELATING TO THE ADOPTION OF THE STATE ENERGY CONSERVATION CODE
BEFORE THE
HONOLULU CITY COUNCIL
ON
WEDNESDAY, JULY 3, 2019

Chair Anderson, Vice-Chair Kobayashi, Floor Leader Fukunaga, and members of the council, my name is Will Giese, and I am the Executive Director of the Hawaii Solar Energy Association, Inc. (HSEA).

The HSEA was founded in 1977 to further solar energy and related arts, sciences and technologies with concern for the ecologic, social and economic fabric of the Hawaiian Islands. Our membership includes the vast majority of locally owned and operated solar installers, contractors, distributors, manufacturers, and inspectors across all islands.

HSEA SUPPORTS BILL 25. This ordinance pertains to regulating the design and construction of residential and commercial buildings for the effective use of energy through the adoption of the State Energy Conservation Code (2017), subject to the local amendments within.

Bill 25 seeks to adopt the solar hot water variance into city ordinance, as well as include provisions that address a variety of energy efficient building design standards, and adopt provisions related to the use of electric vehicle charging stations in single and multi-family residences.

On the solar water heating portion of this measure, both the legislature and the state's environmental court were clear in their understanding that renewable energy devices used to heat water are a boon for homeowners. Hawaii is a unique state, with a unique climate that makes it one of the most conducive states to technology like solar thermal heating. That is why Hawaii is the leading market for solar water heating sales in the entire United States.

Ten years ago, the state legislature enacted Act 204 and subsequently Act 155 requiring solar water heaters to be installed on all new single family homes. Act 204 of the 2008 regular legislative session first established §196-6.5 as a means to encourage the adoption of inexpensive and energy efficient water heaters in new single-family home construction. Subsequently, in 2009 the legislature passed Act 155 which, specifically in Part VII, sought to clarify the administration of the Solar Hot Water Variance Law. Act 155 asserted that variances would be "rarely, if ever, exercised or granted because the burden of proof will lie with the applicant to demonstrate that a solar water heater system, regardless of location or circumstance, is not cost effective in the context of a thirty-year mortgage."

This measure allows the City a means to enforce this state requirement by enshrining a similar requirement into ordinance. It could go a step further by requiring that this same standard apply to multi-family housing, which helps reduce the cost of housing for low and middle income communities. In the confines of a 20-30 year mortgage, the cost effectiveness and utility of a solar water heater has been proven time and again to be overwhelming worth it.

Another part of this bill requires that electrical vehicle charging station pull outs are required in multi-family housing units. There are myriad benefits to electrifying transportation that drastically help the state lower its carbon emissions. By providing sufficient electric vehicle charging stations in multi-family housing, you allow the tenants of these housing units to realize the benefit and cost savings of an electric vehicle, while simultaneously reducing emissions from an ICE or carbon-based fuel burning vehicle by removing it from the road.

The HSEA STRONGLY SUPPORTS BILL 25, and we ask the council to adopt this ordinance subject to our comments above.

Thank you for the opportunity to testify.

Testimony Attachment	
Accept Terms and Agreement	1

From: CLK Council Info
Sent: Wednesday, July 03, 2019 1:46 AM
Subject: Council/Public Hearing Speaker Registration/Testimony

Speaker Registration/Testimony

Name	Sharlene Chun-Lum
Phone	8083542434
Email	sharstocks@yahoo.com
Meeting Date	07-03-2019
Council/PH Committee	Council
Agenda Item	Bill 25
Your position on the matter	Comment
Representing	Self
Organization	
Do you wish to speak at the hearing?	No
Written Testimony	Aligning the City's permitting practices with the State Energy Conservation Code (2017) makes sense. Planning for it now will make it clearer for future development to comply.
Testimony Attachment	
Accept Terms and Agreement	1

City Council
City and County of Honolulu
July 3, 2019
Bill 25 (2019)

Aloha Chair Anderson and Council Members:

Tesla appreciates the opportunity to submit this testimony regarding Bill 25 (2019) which would modify the Honolulu Energy Code to establish an EV-ready infrastructure requirement. As discussed below, while Tesla supports the bill's intent, we believe it should be amended such that the EV- ready infrastructure deployed, whether in the residential or commercial context, can support Level 2 charging.

As Honolulu seeks to reduce its dependence on fossil fuels through transportation electrification, measures like Bill 25 (2019), which recognize that initial construction is a cost-effective and key opportunity to support access to EV charging, are of significant importance. Absent convenient and widespread access to EV charging, the willingness of individuals to purchase an electric vehicle will be limited. Parking spaces where customers already park their vehicles for 8-10 hours, like at their place of residence or work, are ideal candidates for the deployment of Level 2 charging infrastructure, which is sufficient to allow EVs with a range over 200 miles to fully, or near-fully, charge.

This has been recognized by a growing number of municipalities including the cities of Seattle, Vancouver, Atlanta, San Francisco, and Oakland, each of which have adopted a Level 2 EV-ready requirement akin to what is being proposed here. However, Tesla is very concerned that the residential and multi-unit dwelling requirement as drafted in this measure, which only directs the deployment of EV-ready infrastructure sufficient to support Level 1 charging, is inadequate to support the needs of EV drivers.

Level 1 charging, or "trickle charging", means charging an EV using a standard 120 volt outlet. The rate of charge associated with this is roughly 4 miles of range per hour of charging. Below is a list of the most commonly purchased EVs and the associated charging time for a full charge from a standard 120 volt outlet.

- Nissan Leaf – 1.7 to 2.6 days
- Chevy Bolt – 2.5 days
- Tesla Model 3 – 2.5 to 3.1 days

These charging times are completely impractical and would likely force EV drivers to supplement their home charging with another charging option or source. This necessarily complicates life with an EV and thus, in Tesla's view, will do nothing to promote or support a household's decision to purchase an EV, given that few if any customers will be willing to sacrifice anything in terms of convenience to do so. To the degree the intent of the proposed amendments is to ensure that buildings are constructed in a manner that can effectively support the decision of Honolulu residents to purchase an EV, this particular provision needs to be changed to require Level 2 charging.

It is especially important to get this right in the multi-unit residential context, where to date, limited access to charging renders EVs impractical for the vast majority of those Honolulu residents that do not live in single family housing. Unlike the case for those living in single family housing, occupants in multi-unit buildings do not typically have the authority or means to deploy charging infrastructure. Furthermore, the costs of retrofitting this infrastructure in an existing parking facility is extremely high. As a result, by limiting the residential and multi-unit building requirement to Level 1 charging, the proposed EV ready requirement will likely perpetuate the status quo, where EVs will continue to be a viable option for only a small segment of the population.

Tesla estimates that the cost difference between Level 1 and Level 2 EV-ready infrastructure is relatively small, on order of a few hundred dollars. When that differential is compared to the overall costs of constructing a new building or parking facility, it is truly de minimis. It seems more than reasonable to incur this modest upfront increase in costs, given the dramatically improved level of service provided by Level 2 charging and its ability to meaningfully support and drive EV adoption.

To address Tesla's concerns, the proposed language in Bill 25 (2019) relating to Subsection C406.8 should be modified as follows (underlined indicates additions, ~~strikethrough~~ indicates deletions):

C406.8 Electric vehicle infrastructure. New residential multi-unit buildings that have eight or more parking stalls, and new commercial buildings that have twelve or more parking stalls, shall be electric vehicle charger ready for at least 25 percent of the parking stalls. As used in this section, "electric vehicle charger ready" means that sufficient wire, conduit, electrical panel service capacity, overcurrent protection devices and suitable termination points are provided to connect to a charging station capable of providing simultaneously an AC Level ~~1~~ 2 charge per required parking stall ~~for residential and multi-unit buildings. For commercial buildings, at least 25 percent of the parking stalls are required to be AC Level 2 charger ready~~. Charge method electrical ratings are provided below:

CHARGE METHODS ELECTRICAL RATING

Charge Method	Normal Supply Voltage (Volts)	Maximum Current (Amps – Continuous)	Supply Power
~~AC Level 1~~	~~120V AC, 1-Phase 120V AC, 1-Phase~~	~~12A 16A~~	~~120VAC/20A (12-16A continuous)~~
AC Level 2	208 to 240V AC, 1-Phase	≤ 80A	208/240VAC/20-100A (16-80A continuous)

Tesla thanks the City Council for the opportunity to submit this testimony.